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quick facts on...

Indoor Plumbing Fixture Retrofitting

MARCH 2010

The South Florida Water Management District *is a regional, governmental agency that oversees the water resources in the southern half of the state. It is the oldest and largest of the state's five water management districts.*

Our Mission *is to manage and protect water resources of the region by balancing and improving water quality, flood control, natural systems, and water supply.*

Replacing old plumbing fixtures and water-using appliances with new, high-efficiency models can achieve significant water savings. The actual savings will vary depending on the age and/or efficiency level of the old and new items as well as the frequency of use.

Water Savings: Residential

Table 1 shows common plumbing fixtures and appliances and their respective water consumption rates. The water consumption shown is before and after industry standards were established by the 1992 Energy Policy Act (effective after 1994) and at two increasing levels of efficiency.

Table 1: Water Consumption of Common Plumbing Fixtures per Single Use

	Pre-1980	1980-1994	Post 1994	High Efficiency	Ultra High Efficiency	Dual Flush (Average)
Toilets (gallons per flush)	7.0 to 5.0	3.5	1.6	1.28	0.8	1.20
Showerheads (gallons per minute)	8.0 to 5.0	2.75	2.5	2.0	1.75	–
Faucets (gallons per minute)	4.0 - 7.0	2.75	2.5	1.0 to 1.5	0.5	–
Dishwasher (gallons per load)	56	10 to 14	7	6.5	4.50	–
Clothes Washer (gallons per load)	–	39	27	22	–	–

Table 2 shows estimated water use of less expensive plumbing fixtures in a household of 2.64 people in gallons per day. Retrofit programs involving these fixtures are usually highly cost-effective.

Table 2:
Water Consumption of Common Plumbing Fixtures in Gallons Per Day Per Household (2.46)

Water Appliance/ Fixture	Pre-1994	Post-1994	High Efficiency	Ultra High-Efficiency
Toilet	88 to 44	20	16	10
Showerhead	70 to 24	23	17	15
Faucets	93 to 37	29	20	13
Total	**210 to 105**	**72**	**53**	**38**

Retrofitting 1,000 houses built to pre-1994 standards with high-efficiency devices would save between 50,000 – 100,000 gallons per day, or 19 – 57 million gallons per year. Retrofitting 1,000 houses built to post-1994 standards with high-efficiency devices would save about 22,000 gallons per day, or 8 million gallons per year. Greater savings still can be expected using ultra high-efficiency devices.

Water Savings: Commercial Office Building

Table 3 shows restroom water use in three office buildings (of 25 male and 25 female worker) at varying levels of efficiency. Retrofitting the restrooms with high-efficiency fixtures would result in savings between 180 and 480 gallons per day, or 48,000 and 125,000 gallons per work year (260 days).

Table 3:
Commercial Office Building Restroom Water Use

Water Appliance/ Fixture	Pre 1994	Post 1994	High Efficiency
Toilet	3.5	1.6	1.28
Urinal	1.5	1	0.125
Faucet	2.5	2.2	1.0
Gallons Per Day	**715**	**420**	**235**

*Water Use for restroom fixtures in gallons per flush for toilets and urinals and gallons per minute for faucets.

Installation and Maintenance Costs

Retrofit programs for certain appliances such as dishwashers and clothes washers are often cost-effective only in commercial facilities. However, the cost-effectiveness of replacing showerheads, faucet aerators and toilets make these items good buys in both residential and commercial programs. Costs of executing a retrofit program will vary depending on the design of the individual program. Program designs can be based on several different platforms including giveaways, free or subsidized exchanges and rebates or vouchers.

How the South Florida Water Management District Can Help

Through the Water Savings Incentive Program (WaterSIP), the South Florida Water Management District provides matching funds up to $50,000 to water providers and users for installing water-saving technologies, such as high-efficiency plumbing fixtures, rain and soil moisture sensors and fire hydrant flushing devices. Potential applicants include cities, public utilities and water providers, homeowners associations, schools, hospitals and industrial/commercial facilities. Individual residences are not eligible.

Since its inception in 2003, WaterSIP has allocated more than $3.8 million to dozens of public and private entities across the District's 16 counties, resulting in an estimated water savings of more than 2.3 billion gallons per year. The program is based on cost-sharing. Entities seeking funding must be able to match at least 50 percent of the total costs for the project, either with matching funds or in-kind services. Up to 100 percent funding is available to Rural Economic Development Initiative communities.

In addition, to those mentioned above, other indoor water conservation items will be considered for funding support under the WaterSIP program. Indoor water use assessments conducted by a professional auditor may also be considered for support under WaterSIP if part of a retrofit program.

Applications for WaterSIP are posted annually in February. Check the WaterSIP Web site for details on the program and application process. To learn more about WaterSIP, please contact Robert Wanvestraut, SFWMD Senior Conservation Officer, at rwanvest@sfwmd.gov or 561-682-2054. You may also visit us online at www.sfwmd.gov/watersip.

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South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406
561-686-8800 • 800-432-2045
www.sfwmd.gov

MAILING ADDRESS: P.O. Box 24680
West Palm Beach, FL 33416-4680

SERVICE CENTERS

Big Cypress Basin/Naples
239-263-7615
Broward
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561-682-6000 or 800-432-2045